

May AR Manipulate Users Subconsciously?



Marcus Tönnis, Manuel Huber
 Computer Aided Medical Procedures & Augmented Reality, TU München
 <toennis@in.tum.de>, <huberma@in.tum.de>



Augmented Reality (AR)

AR has the potential to superimpose virtual objects to the real environment

Isaac Asimov's First Law states:

A robot may not injure a human being or, through inaction, allow a human being to come to harm.

Question

May computer and Augmented Reality systems have the right to alter reality and – if so – under which circumstances?

Example

Psychological Care for Paramedics

Disaster management system removes all injured subjects from view who are not on treating list of the paramedic.

Example

Indirect Support for Car Drivers

Wipe irrelevant information out of field of view.



Driving Environment with much visual information

Example

Compensating Fear of Height

Add railings and ground floor to working environment.



Example for Augmented Railings



Pro: ▶ Higher focus on task

- ▶ Less distraction and mental impact
- ▶ lower risk for trauma

Issues and Risks:

• Malfunction or Turn-Off

- ▶ Immediate information overload
- ▶ Spontaneous awareness about current situation
- ▶ Immersive mental impact (prob. trauma)

• Later Realization

- ▶ Risk of trauma

Directions for Investigation

- Initiate awareness through interdisciplinary discussion
- Invert research: besides investigating feelings of presence in augmented environments, also investigate effects when dropping-out of those

M. Tönnis, M. Huber: **May AR Manipulate Users Subconsciously?** at *European Future Technologies Conference and Exhibition (FET'09) (Prague, 2009)*